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In 1957 Dr. Edward H. Taylor asked me to study and report on a specimen of *Kinosternon,* obtained by him in Costa Rica, that differed from other known species. Description was delayed for want of comparative material. In the three years 1961-63 I collected, prepared, and studied some 700 specimens of the genus *Kinosternon* from Central America. Among these are 13 additional individuals of the species represented by Dr. Taylor's specimen. The species is named and described as follows:

Kinosternon angustipons new species

Holotype.—University of Kansas 43631, adult female, alcoholic; Los Diamantes, Limón Province, Costa Rica; obtained by Edward H. Taylor and John Baker, August 13, 1952; original number 8507.

Paratypes (total of 13).—University of Utah 3756♂, 13 mi. S. San Juan del Norte, Nicaragua *in* Limón Prov., Costa Rica; UU 3757-60,62-64, KU 84882♂♂, UU 3765-66♀♀, .6 mi. NNW Puerto Viejo, Heredia Prov., Costa Rica; UU 3767♀, 2 mi. E and 1¾ mi. S Guabito, Bocas del Toro Province, Panamá and, UU 4189♂, 2 mi. NW Almirante, Bocas del Toro Province, Panamá.

Diagnosis.—A small species of *Kinosternon,* most closely resembling *K. dunni* Schmidt (1947), and having: 1) a flattened, noncarinate carapace; 2) a narrow plastron with anal notch and interlaminal seams that tend to fill with soft tissue in older individuals; 3) a narrow bridge (20% or less of length of carapace); 4) an unstriped head; 5) a maxillary beak that is neither hooked nor notched; 6) clasping organs on posterior limbs of males; and, 7) tip of tail unmodified (neither horn-covered nor clawlike) in both sexes.

Description of species (based upon type series).—Carapace relatively low (highest point on posterior part of fourth central), evenly arched or flat-topped in cross section, oval in dorsal aspect, greatest width usually at level of bridge. No pronounced sculpturing, even in smallest individuals; faint suggestion (creases) of mid-dorsal and dorsolateral keels in small specimens; no trace of dorsal keels in older, larger specimens. Anterior margin of carapace smooth, slightly indented; posterior margin shallowly notched (between postcentrals).

Carapacal scutes imbricated (juxtaposed only in old, worn specimens); first or third central longest and broadest, fifth central shortest and narrowest; centrals 1 to 3 approximately as long as broad, 4th and 5th significantly broader than long. Precentral wedge-shaped, narrowed anteriorly, usually broader than long, shorter than seam between first and second marginals. First central in narrow contact (or not in contact) with M_2. Tenth marginal highest, sloping gradually up from point of contact with M_9, abruptly higher than postcentrals; other marginals flat-topped. Two parallel lateral ridges along margin of carapace, the lower ridge continuous with anterior and posterior free edges of carapace and passing approximately through centers of marginals 4 to 7, the upper ridge continuous with upper borders of marginal scutes and terminating on M_{10}; a distinct marginal bulge between mentioned lateral ridges.

Plastron narrow, its freely movable lobes incompletely closing orifices of shell (extent of closure approximately 55 per cent for anterior lobe, 50 per cent for posterior); bridge narrow (17 to 20 per cent of carapace length), imparting subcruciform appearance to plastra of largest males. Plastral lobes constitute, respectively, approximately 33, 29, and 38 per cent of plastral length; posterior lobe constricted at hinge and having wide, shallow anal notch (more pronounced in males than in females). Interlaminal seams (especially those over hinges and the interfemorals) of older individuals containing varying amounts of soft pale tissue. Axillary and inguinal scutes in contact on bridge (narrowly separated in one old male); axillary scute narrowly in contact with M_4 and M_6; inguinal scute in broad contact with M_6 and M_7 (forming narrow contact with M_8 in two specimens). Plastral scutes, in order of length—abdominal, anal, humeral, femoral, gular, pectoral.

Head slightly broadened; snout wide and blunt in dorsal aspect as well as profile; maxillary sheath flat or slightly concave in premaxillary region, *neither hooked nor notched.* Tip of mandibular sheath blunt. Inner crushing surfaces of jaws weakly developed and chiefly smooth. Tomial edges of both sheaths nearly straight in profile. Snout, in general, evenly tapered, lacking pinched appearance characteristic of most other species of *Kinosternon.* Top of head evenly rounded in anterior view, lacking raised brows. Mature males having bosslike enlargement of snout in prefrontal region. Dorsal head shield present but indistinct, blending gradually with softer skin in temporal region.

Internal choanae broadly oval (approximately twice as long as broad); choanal flaps bearing a single papilla on anterior half of flap; free edge of flap (when closed) longitudinally bisecting choanal opening and papilla extending up to one half of remaining distance from edge of flap to medial border of opening. External narial openings directed anteriorly, situated just below tip of snout, round in cross section; floor of each narial passage having distinct, blunt, longitudinal ridge or papilla (clearly visible as a bulge just inside opening and slightly lateral to midventral floor of passage).

A linear series (usually three to six) of small barbels on each side of throat from mandibular symphysis to end of hyoid bar (and following course of that element), concentrated chiefly in triangular area bounded by mandibular rami; usually two or three smaller barbels on or near midline just posterior to symphysis; gular barbels variable in size but never so large as in *K. leucostomum,* and never consisting of enlarged mental pair with smaller ones behind. Skin of neck studded with distinct papillae having rounded white tips; papillae arranged, more or less regularly, in 14 to 16 longitudinal rows. Papillae numerous and distinct also on posterior surfaces of limbs and on tail (especially in perianal region). Hands and feet fully webbed, free edges of webs strongly fimbriated; antebrachium having three falciform scales on anterior surface.

Discrete, apposed patches of specialized scales (clasping organs) well developed on posterior thighs and legs of males; individual scales in each patch spadelike (not "tuberculate," not pointed); spadelike scales angled dorsally at approximately 45 degrees.

Tail of mature males elongate (equal to or longer than posterior plastral lobe), heavy at base, prehensile, and having blunt unmodified tip (not horn-covered, not clawlike). Tail of females not or barely extending to posterior margin of carapace.

Coloration.—The following descriptions are based upon live adults, viewed in clear water with a beam of incandescent light. Colors of live specimens are not significantly different from those which have been fixed and preserved in ethyl alcohol (no formalin used).

In general the colors of both sexes are drab and neutral. Adjacent pale and dark colors are never sharply delimited but grade gradually into one another. The pale snout, pale upper eyelids, and dark eye stand out clearly in lateral or dorsolateral views of the head and an observer's attention is drawn to them at first glance. This is not so in *K. leucostomum* in which the upper eyelids are either not pale or are joined in a continuously pale or mottled field with the frontal region and snout.

Female (UU 3767)

Iris brown, flecked with golden yellow, the combination appearing to be uniform dark brown except in bright light. Soft skin around nostrils cream; upper eyelids grayish cream; horny sheaths of jaws yellowish cream, grading into pale brown, the darker color being near junction of skin with horn. Ground color of limbs, tail, and dorsal part of neck pale gray to brownish gray, slate in darkest areas. Inguinal pockets grayish cream. Ventral surface of neck (except for a small gray area in front of plastron) yellowish cream, suffused with pink on gular region; a short, dull brown, indistinct stripe extending from mandibular symphysis (not on horny sheath) onto gular region. Top of head dark neutral brown with slight purplish cast, head shield slightly darker than softer skin behind it; side of head tannish above, grading gradually into paler color of throat; palest area on side of head over tympanum, same color as horny sheaths; a few indistinct, irregular, pale brown marks on side of head, chiefly near corner of mouth, below tympanum, and between tympanum and orbit.

Plastron dark golden yellow; interlaminal seams narrowly edged with dark brown; soft skin of interlaminal seams (where present) gray, same color as limbs. Undersurfaces of marginals slightly darker than plastron, pale color extending up to lower of two lateral marginal ridges. Carapace dark brown, having indistinct paler brownish areas near centers of scutes.

Male (UU 3757)

Iris somewhat paler than in female, having a pale reddish cast but consisting of brown and golden flecks (iris not distinct from pupil except in bright light). Jaw sheaths having fine, vertical, pale brown stripes. Ground color of plastron pale neutral yellow, much paler than in female.

Osteology.—Of Central American kinosternids, the skeleton of *Kinosternon leucostomum* bears the closest resemblance to *K. angustipons.* The following description is based upon two complete adult skeletons (UU 3760♂, UU 3766♀) and an adult shell (UU 4189♂) of *angustipons;* where skeletal characteristics are regarded as differing significantly from those of eight adult specimens of *leucostomum* (4 males and 4 females), the characteristics of *leucostomum* are given in brackets. In general, no significant differences were observed in the appendicular skeletons of the two species.

Skull solidly built, greatest width 65 to 66 per cent of total length, height 71 to 73 per cent of width; supraoccipital process relatively short, eight per cent of total length of skull [13 to 17 per cent in *leucostomum*]. Orbit relatively small and nearly circular, having substantial overhang of bone above; vertical diameter as a percentage of least interorbital breadth, 56 (♂) to 62 (♀) [orbit larger, relatively higher due to deficiency in overhang of bone above, vertical diameter 58 to 83 per cent (♂♂) and 68 to 74 per cent (♀♀) of least interorbital breadth]. Snout tapering anteriorly from base of postorbital bar [from point above mid-orbit]; top of skull (anterior aspect) more or less evenly rounded [more nearly flat-topped], dorsal orbital rim not at all jutting or browlike in appearance [distinctly jutting and browlike, albeit smaller]. Stapediotemporal foramen indistinct [distinct]. Temporal arch weakly emarginate below; quadratojugal comprising nearly one-half of temporal arch, jugal excluded from upper free edge of arch [jugal entering upper free edge]; crushing surfaces of maxillae poorly defined, not concave, sloping dorsomedially, especially weak in premaxillary region [concave; inner border sharp, distinct and continuous across premaxillary region]; anteroventralmost part of vomer greatly expanded, this expansion, the vomeropremaxillary articulation, and incisive foramina visible in ventral exposure [not so expanded, and structures mentioned excluded from ventral view by posterior premaxillary ridge]; maxillae widely separated anteriorly [in contact or closely approximated]; maxillary beak weakly or not at all developed; ventral part of snout lacking indented or "pinched" appearance in ventral view; profile of maxillary cutting edge forming nearly straight line [beak well developed; snout bilaterally

indented, having "pinched" appearance; profile of maxillary cutting edge recurvate]. Angular and coronoid bones of mandible not or but scarcely visible in direct lateral view; angular separating surangular and prearticular ventrally.

Cervical vertebrae typically kinosternid, second opisthocoelous, third biconvex, and remaining five procoelous; of these, sixth and seventh doubled posteriorly, seventh and eighth doubled anteriorly.

Phalangeal formula 2-3-3-3-3 on hand and foot (this assumes that metatarsal V is combined with a tarsal to form a single "hooked" element).

Primary sacral ribs expanded nearly to width of ilial blade at sacroiliac joint, narrow at distal articulation; secondary sacral ribs not at all expanded.

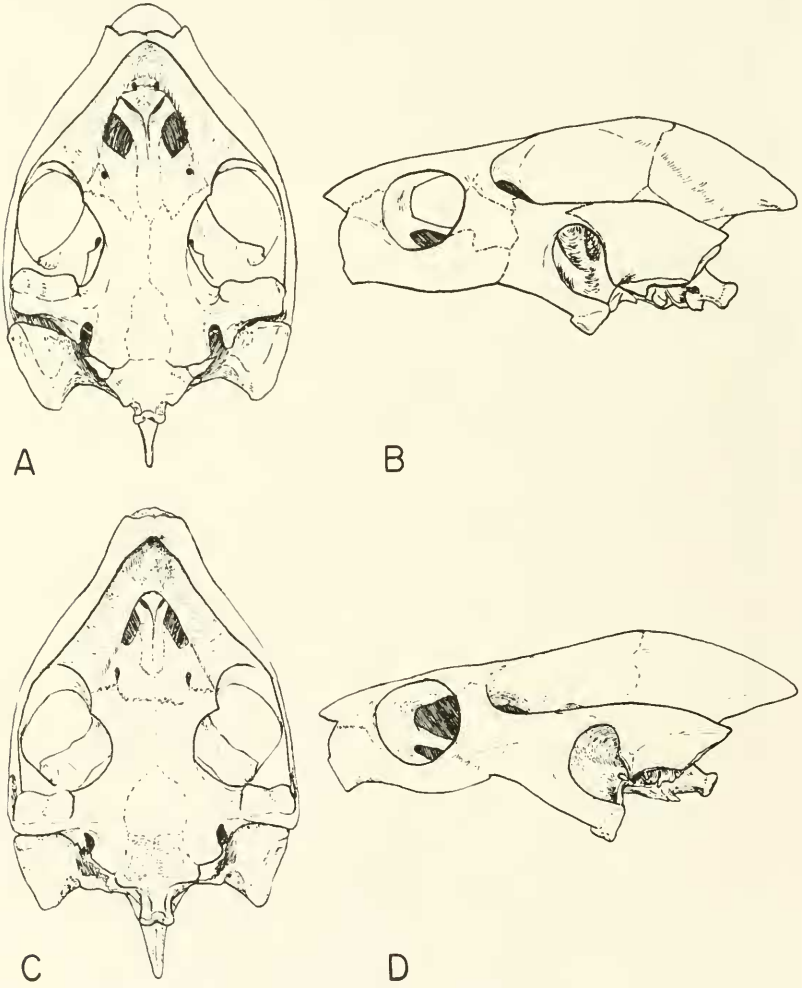
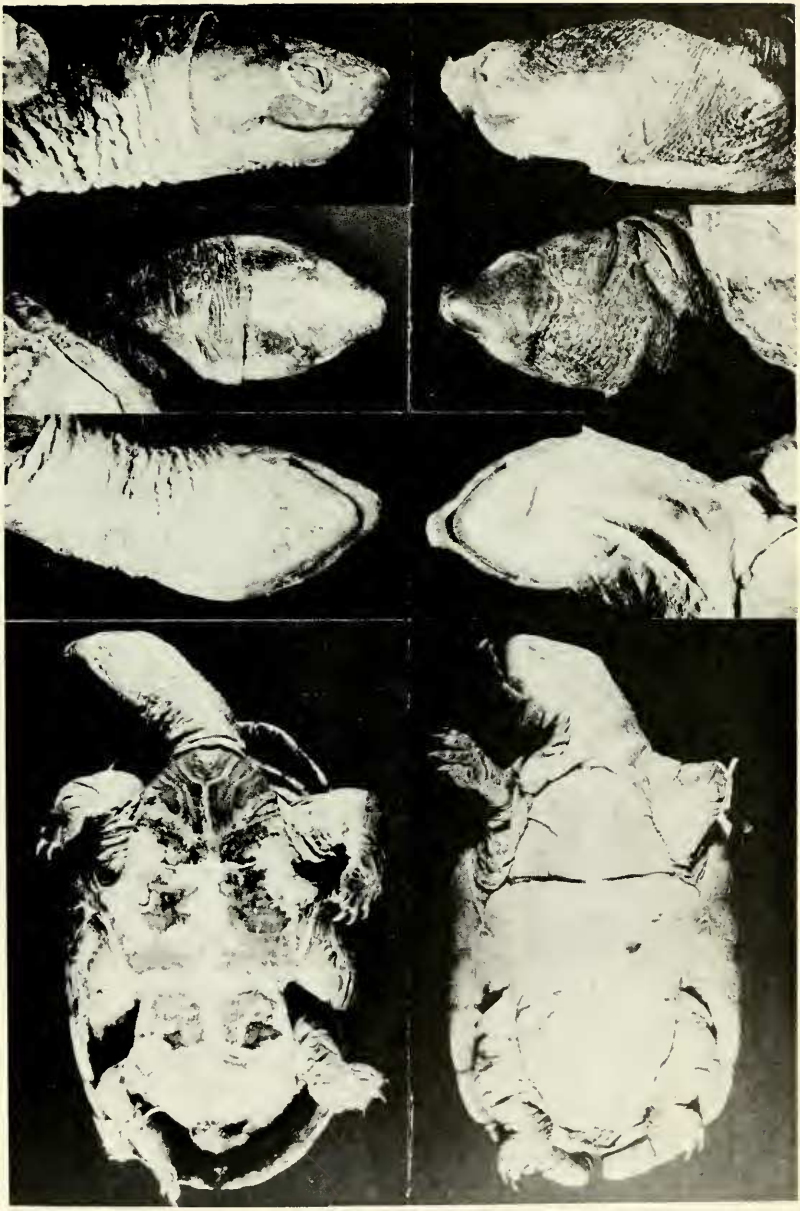
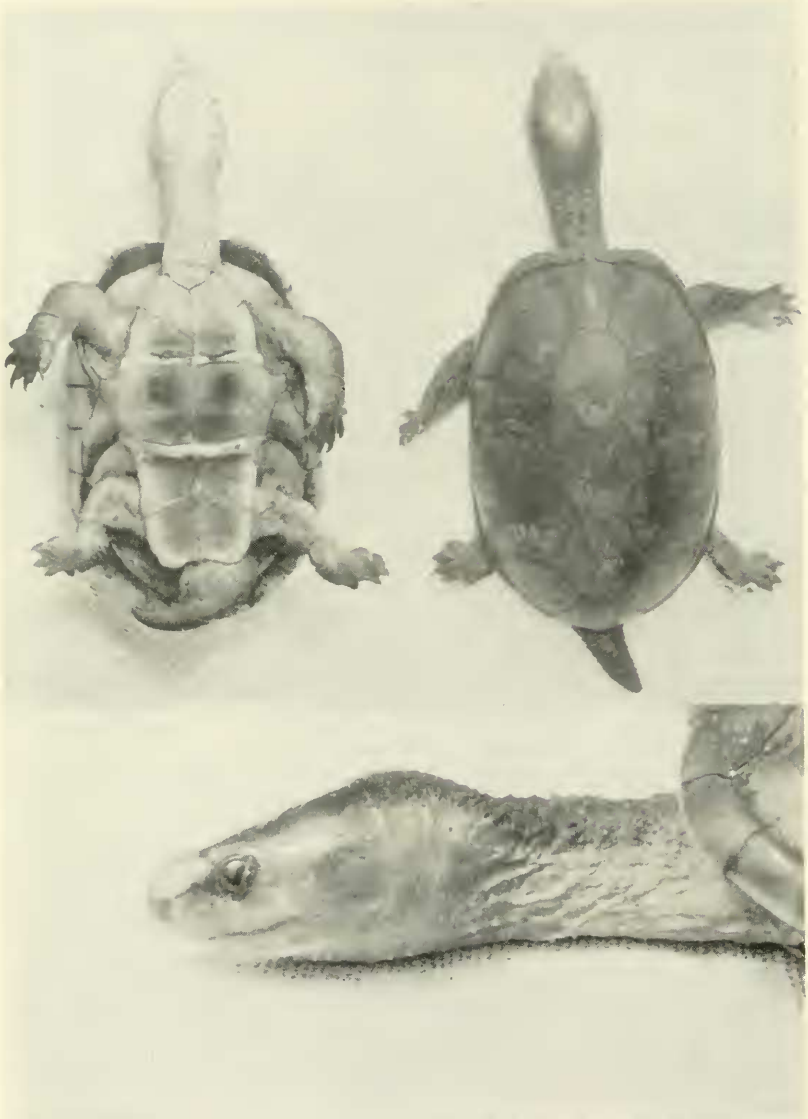


Fig. 1. A and B, Ventral and lateral views of skull, *Kinosternon angustipons*, paratype (UU 3766 ♀) × 2; C and D, skull of *K. leucostomum* (UU 4233 ♀, Gamboa, Canal Zone) × 2.

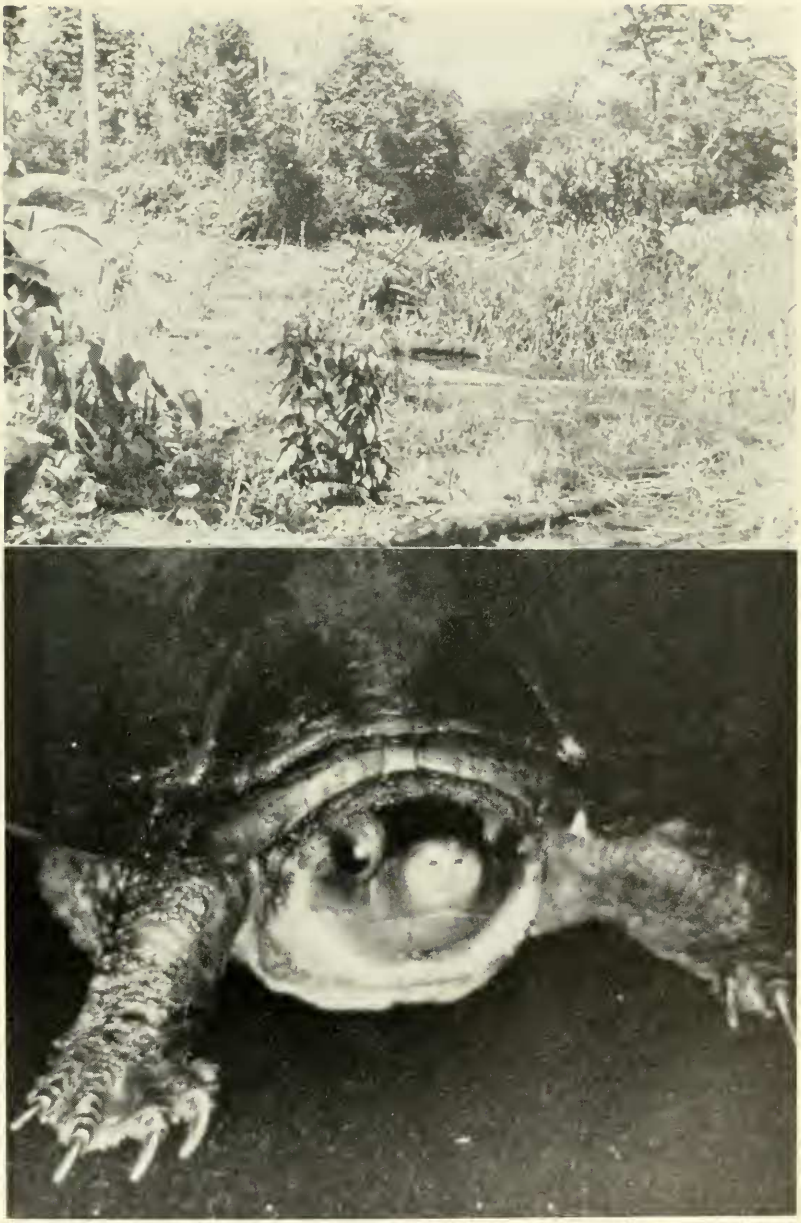
PLATE 26



Comparison of holotype, *Kinosternon angustipons* (left column) and paratype (CNHM 42803♀), *K. dunni* (right column); heads × .9; plastral views × .5 and .6, respectively.



Old male of *K. angustipons* (UU 3756), freshly killed; dorsal and ventral views × ½; head slightly larger than actual size; all photographs from color transparencies.



Top. Habitat of *K. angustipons*, .6 Mi. NNW Puerto Viejo, Heredia, Costa Rica, 22 July 1961. Nine specimens were obtained from small pool in foreground. *Bottom.* Anterior view of live female (UU 3767) showing pale snout and eyelids and unhooked beak, × 1½. All photographs from color transparencies.

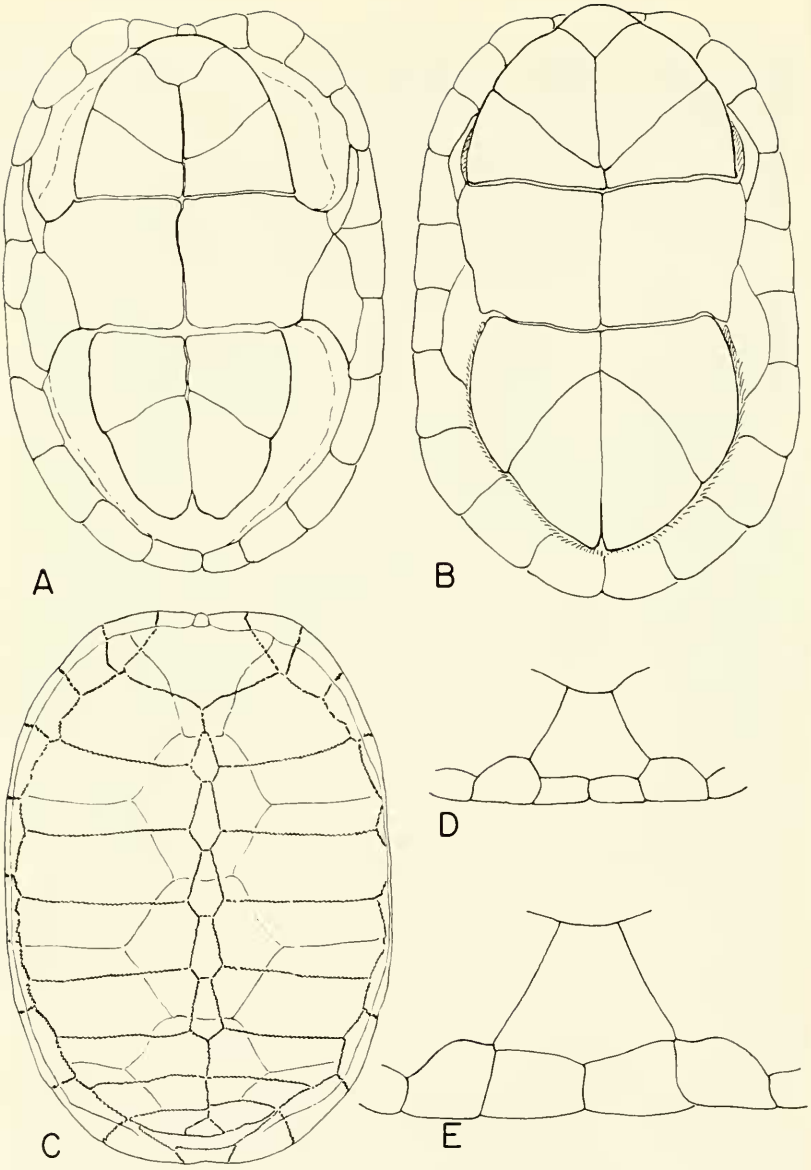


FIG. 2. A, Ventral view of shell, *Kinosternon angustipons*, paratype, (UU 3766♀) × .8; B, same view, *K. leucostomum* (UU 4232♂, Puerto Viejo, Heredia, Costa Rica) × .6; C, dorsal view of scuteless shell, *K. angustipons*, paratype (UU 3760♂) × .8; D and E, posterior margin of carapace showing fifth central lamina and the relative heights of postcentral and 10th marginal laminae in *K. angustipons* (UU 3766♀) and *K. leucostomum* (UU 4232♂), respectively (approximately × .85).

Caudal vertebrae 18 in ♂, 21 in ♀, distal two or three fused or nearly fused into blunt tip [terminal vertebrae fused into clawlike tip].

Five juxtaposed neurals, first neural separated from nuchal (by intercostal suture) by distance half its own length; shape of neurals basically hexagonal, long sides being anterior to an intercostal suture and short sides posterior in all specimens; pygal more or less rectangular, slightly notched; suprapygal six-sided, concave above, convex below, width approximately three times height [five-sided, width two times height]; small, subtriangular anterior suprapygal in two of three specimens [no anterior suprapygal]; of eight pairs of costals, last three pairs in mid-dorsal contact between last neural and anterior suprapygal, eighth pair only narrowly so [three, sometimes four pairs in *broad* contact]; first peripheral about as high as second, separated from its fellow (by nuchal) by width equal to or greater than its own; first peripheral in contact with first costal, separating nuchal and second peripheral [first peripheral much lower than second; nuchal and second in contact, excluding first peripheral from contact with first costal].

Comparison with other Central American species.—In my opinion there are four full species of *Kinosternon* in Central America south of the Republic of Mexico. These are *Kinosternon angustipons, K. acutum* Gray, *K. leucostomum* (including *K. postinguinal* Cope and *K. spurrelli* Boulenger), and *K. scorpioides* (Linnaeus) (including *K. panamensis* Schmidt and *K. cruentatum* Duméril, Bibron and Duméril). In *K. angustipons* the axillary scute is in narrow contact with the fourth marginal, never with the third; in the other three species the axillary is in contact with M_3 or narrowly separated from it, never separated by nearly the entire length of M_4. *K. angustipons* is further distinguished from these species in lacking a hooked, recurved maxillary beak and in lacking a distinct claw on the tip of the tail in both sexes. All these characteristics (except that of the maxillary beak) serve also to distinguish *K. dunni* from the other three species mentioned.

Comparison with Kinosternon dunni.—Differences in the heads and necks of the two species are the most striking, yet the most subjective (Pls. I-III). In profile *K. dunni* has a moderately hooked beak and recurved tomial edge on the maxillary sheath whereas *angustipons* has a flattened beak and a tomial edge that is nearly straight. In dorsal and ventral views the snout of *dunni* is much more pronounced, having a pinched appearance and probably being somewhat larger because of greater bulging of soft, circumnarial tissues. The snout of *angustipons* tapers evenly (unpinched) and is generally blunt in appearance. The dorsal head shield of *dunni* is sharply delimited whereas that of *angustipons* grades subtly into the softer skin of the neck.

The dermal papillae on the neck of *angustipons* are numerous, distinct, white-tipped, and arranged in regular longitudinal rows. There are also white-tipped papillae on the posterior surfaces of the limbs, the tail, and perianal region of *angustipons*. In *dunni* these dermal papillae are smaller, less numerous, less distinct, and irregularly arranged. Few papillae are discernible on the holotype (CNHM 42804) of *dunni* and those on the neck of the paratype (CNHM 42803) are restricted chiefly to a lateral row on each side. The tails and perianal regions of the two species are sharply differentiated, that of *angustipons* being distinctly papillose, and that of *dunni* being nearly bare.

Females of *angustipons* have relatively broad, short tails that are rounded (never pointed) and lack a terminal spine. Females of *dunni* have distinctly narrower tails, which are pointed. The holotype of *dunni* has a small terminal spine; the paratype does not.

On the holotype of *dunni* there is a deep distinct crease on each side of the middle plastral lobe (abdominal), beginning just behind the abdominal areola and extending to a point opposite the anterolateral corner of the posterior lobe. The middle lobe slopes angularly upward into the bridge lateral to the creases. The sides of the creases (especially the medial sides) form blunt, raised ridges. The creases are evident but weakly developed in the juvenal paratype of *dunni* and Medem's photographs (1961:465, fig. 8) indicate that at least the ridges are present on his specimens. No specimen of *K. angustipons* has such creases or ridges; the middle plastral lobe lies in approximately the same plane as the bridge or, if slightly lower, slopes into the bridge more gradually than in *dunni*. This feature of the plastron accounts, in part, for the relatively lower shell of *angustipons* (Table 1).

Consistent differences in shape of carapace are as follows: *dunni* tending to be widest at level of M_8, noticeably constricted opposite bridge (*angustipons* widest at point opposite bridge, not constricted, not flared posteriorly); large individuals of *dunni* having distinct, narrow, flattened area confined to central laminae, suggesting the weakly tricarinate condition found in some

Table 1. Proportional Differences Between *Kinosternon angustipons* sp. nov. and *K. dunni* Schmidt. Data Are Based Upon 14 Specimens of *angustipons* (10♂♂ 4♀♀) and Upon the Types (Examined) and Two Other Specimens (Not Seen, Medem, 1961, 1962) of *dunni* (1♂ 3♀♀). Where Measurements of *dunni* Were Not Made From Specimens, Proportions Were Computed From Published Data, Drawings, or Photographs. Statements in the Left Column Refer to *angustipons*. Arithmetic Mean, Range, and Standard Deviation Are Given for Each Character (Separately for Each Sex if Character Judged to Be Dimorphic).

Condition in *K. angustipons*, and Character Measured	*K. angustipons*	*K. dunni*
Bridge relatively narrower; minimal width (anteroposterior) of bridge expressed as percentage of carapace length	18 ± 1.1 (17–20)	24 ± 0
Shell relatively lower; height of shell expressed as percentage of maximal width of carapace	♂♂ 55 ± 1.4 (51–56) ♀♀ 58 ± 3.6 (54–62)	♂ 65 ♀♀ 62 ± 3.16 (59–65)
Abdominal and anal scutes relatively shorter, pectoral and femoral scutes relatively longer; interlaminal length of each scute expressed as percentage of sum of median interlaminal lengths:		
Pectoral	8.3 ± 1.28 (6.8–10.8)	6.3 ± .97 (5.2–7.1)
Abdominal	29.8 ± 1.44 (26.7–31.7)	32.3 ± 2.27 (29.9–34.8)
Femoral	15.7 ± 1.88 (13.4–19.6)	11.7 ± 1.24 (10.3–12.5)
Anal	♂♂ 18.8 ± 2.21 (15.6–22.1) ♀♀ 22.8 ± 2.12 (19.6–23.9)	♂ 22.1 ♀♀ 25.7 ± .64 (25.2–26.1)
Head relatively narrower, especially in females; width of head expressed as percentage of carapace width	♂♂ 31 ± 1.5 (28–33) ♀♀ 29 ± 1.0 (28–30)	♂ 32 ♀♀ 35 ± 2.35 (31–35)
Plastron constricted at posterior hinge; width at hinge expressed as percentage of width (maximal) across femorals	94 ± 3.0 (90–102)	100 ± 1.6 (98–102)

populations of *K. scorpioides* (shell of *angustipons* more evenly rounded, not distinctly flat-topped in region of centrals).

Arithmetic expressions of these and other proportional differences between the two species are set forth in Table 1. The characters mentioned for the bridge, head, and posterior plastral hinge, however, are detectable without the aid of measurement and computation.

Size.—Use of adult size as a taxonomic character to compare small samples of turtles is hazardous; but, in some chelonians growth is determinate to the extent that: 1) it tapers off rapidly at a certain age or size and proceeds slowly or not apparently thereafter; 2) old individuals at or near maximum size are recognizable by external characteristics of the shell. It seems clear that the size attained by adults is at least partly under genetic control and that, if differences in size between two species can be demonstrated, they should be exploited as taxonomic characters.

The largest male of *angustipons* has a carapace length of 112 mm (nine other males range from 82 to 101) and the largest female a length of 119 (three others 90 to 109). Corresponding figures for known specimens of *dunni* are as follows: ♂ 171; ♀♀ 150, 149; a shell of unknown sex 175. The largest specimens of *angustipons* are clearly adults and, on the basis of appearance of shell, are past the age of normal regular growth; hence, they are near the maximum size that they would have attained. The second largest male (UU 3756, 101 mm) is likewise near maximum size. The paratype of *dunni* (CNHM 42803, ♀ 93 mm) is probably immature, whereas all females of *angustipons* are mature. I therefore regard the difference in adult size of *angustipons* and *dunni* as too great to be attributed to fortuitous sampling; *angustipons* is much the smaller of the two species and probably never attains the relatively ponderous bulk of *dunni*.

Localities and *Habitat.* Localities mentioned for the paratypes are reckoned, for clarity, in terms of airline miles from geographic points which appear on most maps. The locality for UU 3756 lies on the southern edge of a large island formed by the Bravo and Colorado channels of the Río San Juan at its delta, just west of the confluence of the Río Chirripó and the Colorado Channel. Actual place of collection was ¼ mile E of a farm referred to locally as "Valiente." Specimens from Bocas del Toro Province, Panamá, were taken along the railroad of the Chiriquí Land Company. The localities, as marked along the right of way, are: Mile 22½ (UU 3767) and Mile 2 (UU 4189), the "miles" being reckoned from the railroad shops in Almirante. Los Diamantes is a farm on the railroad, approximately two miles east of Guápiles.

All specimens were collected by means of baited hoopnets in shallow permanent swamps or slow, scummy backwaters of streams. Traps set nearby in clearer, flowing water yielded specimens of *K. leucostomum* but no *angustipons*.

Geographic range.—*K. angustipons* is now known only from the specimens herein reported; hence, the known range of the species extends, in the Atlantic lowlands, approximately from the delta of the Río San Juan (on the boundary between Nicaragua and Costa Rica) to Almirante, Bocas del Toro, Panamá. Most of the localities from which specimens are known are near sea level (less than 100 M); Los Diamantes is the highest, having an elevation of approximately 260 meters. Satisfactory microhabitats for the species probably exist, almost continuously, from northeastern Honduras to Colon, Panamá.

Discussion.—It is evident from the data presented that *K. dunni* and *K. angustipons* are closely related but taxonomically distinguish-

able. There is insufficient evidence at present to evaluate judiciously the standing of these taxa, in terms of species *vs.* subspecies. The apparent rarity of both taxa and general lack of field work in critical areas combine to make the problem an irresolvable one now. *K. angustipons* is here regarded as a full species because it is morphologically distinctive and is not known to interbreed with *K. dunni* nor other kinosternids.

The gap separating the known ranges of *dunni* and *angustipons* is at least 400 miles (from Almirante to the mouth of the Río Atrato) and includes the whole of the Isthmian region of Panamá. Possibly the gap is more apparent than real. Until better evidence is available, I predict (by inference from studies of other aquatic chelonians in Central America) that *dunni* and *angustipons* constitute an example of a pair of closely related species of recent origin whose ranges are separated narrowly in the Isthmian region of Panamá. The species *Geoemyda funerea* (Cope) and *G. punctularia* (Daudin) constitute another such pair in the same region whereas *Staurotypus triporcatus* (Wiegmann) and *S. salvini* Gray probably constitute a like example in northwestern Central America.

Relationships.—Except for its evident close relationship to *K. dunni,* the relationship of *K. angustipons* to other members of the genus is not clear. The combination of narrow plastron and narrow bridge is a striking feature and is seen also, to variable degrees, in *Kinosternon bauri* Garman, *K. herrerai* Stejneger, *K. hirtipes* Wagler, and *K. subrubrum* (Lacépède). My own studies of these species indicate that none of them is especially closely related to *angustipons* or *dunni,* in spite of the plastral similarity. Beyond this, I am unable to assess the relationships of *K. angustipons* at the moment.

Remarks.—*Kinosternon angustipons* is seemingly nowhere well known by natives. The species is not utilized for food (kinosternids rarely are) and, to my knowledge, it has not been given a common name even in local areas where many persons are familiar with turtles. In western Panamá and northern Costa Rica, *K. angustipons* and *K. leucostomum* are called "Galápago." Most persons who confused the two species in this manner were quick to see the differences I pointed out to them.

The specific name *angustipons* is from the Latin *angustus* (narrow) and *pons* (bridge) meaning narrow bridged.

Acknowledgments.—I am grateful to Dr. William E. Duellman (University of Kansas) and Dr. Robert F. Inger (Chicago Natural History Museum) for the loan of specimens. The authorities of the Gorgas Memorial Laboratory in

Panamá (especially Drs. C. F. Johnson, M. Hertig, G. B. Fairchild, and P. Galindo) did much to facilitate field work in that country as did Dr. Alvaro Wille (University of Costa Rica) in Costa Rica. Messrs. C. M. Keenan and E. Mendez have provided additional specimens from Panamá. Messrs. Lee Bell and Nowlan Dean rendered capable assistance in the field. Elizabeth Lane made the drawings of the skull. Research on which this account is based was supported by the Society of Sigma Xi (RESA Grant) and the University of Utah Research Committee in 1960, and thereafter by the National Science Foundation (Grant # B-10173).

In August of 1964, after the above account was in press, I discovered that Mr. Wilfred T. Neill had prepared a description of the species newly named in this paper. My thanks go to Mr. Neill for having withdrawn his manuscript when he learned of mine.

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